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## MECHANICS.

203. Proposed by J. EDWARD SANDERS, Reinersville, Ohio.

A train weighing $T(=80)$ tons runs first eastward and then westward in latitude $\lambda(=40°)$ at a velocity $v(=45)$ miles an hour. Find the difference between the pressures on the ground in the two cases.

## NUMBER THEORY AND DIOPHANTINE ANALYSIS.

146. Proposed by PROFESSOR JOSE DE J. CORONADO, Halapa, Vericruz, Mexico.

Find two numbers whose difference is equal to the difference of their cubes.

## AVERAGE AND PROBABILITY.

189. Proposed by G. B. M. ZERR, A. M., Ph. D., Parsons, W. Va.

(a) Lines are drawn from the vertices of a triangle through a random point within it. Find the average area of the triangle formed by joining the points of intersection of these lines with the opposite sides. (b) Lines are drawn from the vertices to points taken at random in the opposite sides of a triangle. Find the average area of the triangle formed by the intersections of these lines.

## NOTES AND NEWS.

Mr. S. A. Corey was elected a member of the American Mathematical Society April 27, and was also recently elected a member of the Circolo Matematico di Palermo.

Cardinal Maffi, raised to the purple lately, is a mathematician of considerable note; he started the "Rivista di scienze fisiche e matematiche" and took an active part in the founding of the Italian Catholic Society for Scientific Studies, and in 1903 was made president. J. H. M.

The University of Pennsylvania offers the following advanced courses in mathematics at the summer session, July 8 to August 17, 1907, each course consisting of thirty lectures: Higher Analytic Geometry, by Prof. E. S. Crawley; Definite Integrals, by Prof. I. J. Schwatt; Theory of Functions of a Complex Variable, by Prof. G. H. Hallett; Differential Equations, by Dr. F. H. Safford.